Chaire Finance Durable
et Investissement Responsable

Report for the year 2018

ASSOCIATION FD&IR

ÉCOLE POLYTECHNIQUE

The research projects of the Chaire FDIR are run by the Toulouse School of Economics and the Economics department at Ecole Polytechnique. At the initiative of the AFG, the Chaire FDIR is made possible for 2018 thanks to the financial support of the following 9 members:

Allianz Global Investors France

Amundi AM

Caisse des dépôts

Candriam France

Edmond de Rothschild AM

Fonds de Réserve pour les Retraites (FRR)

Groupama AM

HSBC Global AM (France)

La Banque Postale AM

Projects undertaken by the Chaire FDIR are supervised by an orientation committee chaired by Claude Jouven (ex-chairman of the Fondation HEC), and composed of Rob Bauer (University of Maastricht), Marcel Boyer (Université de Montréal), Jean-Pascal Gond (Cass Business School, City University, London), Isabelle Laudier (Institut CDC pour la Recherche), Henri Tulkens (Université Catholique de Louvain) as well as representatives of the partners of the Chaire FDIR. The insights and guidance of the members of the orientation committee is gratefully acknowledged.

Table of contents

Agenda for the meeting of the

Scientific Committee of the Chaire FDIR

4 April 2019

1. Approbation of the 2018 annual report
2. Research achievements
3. Projects for the renewal of the Chaire FDIR
4. Miscellaneous

******

Ordre du jour de la réunion

Du Comité Scientifique de la Chaire FDIR

4 Avril 2019

- Approbation du rapport annuel 2018
- Réalisations de la Chaire FDIR
- Programme de recherche pour le renouvellement de la Chaire FDIR
- Divers

Research team

Patricia Crifo, Ecole Polytechnique & U. Paris Nanterre (Chair co-director)
Sébastien Pouget, Toulouse School of Economics (Chair co-director)
Stefan Ambec, Toulouse School of Economics
Marianne Andries, Toulouse School of Economics
Milo Bianchi, Toulouse School of Economics
Catherine Casamatta, Toulouse School of Economics
Edouard Challe, CNRS & Ecole Polytechnique
Vanina Forget, Ecole Polytechnique & Ministère Agriculture
Christian Gollier, Toulouse School of Economics
Eric Giraud-Heraud, INRA & Ecole Polytechnique
Nicolas Mottis, Ecole Polytechnique
Guy Meunier, INRA Paris & Ecole Polytechnique
Jean-Pierre Ponssard, CNRS & Ecole Polytechnique
Sylvaine Poret, INRA Paris & Ecole Polytechnique
Arnaud Reynaud, Toulouse School of Economics
Jean-Charles Rochet, University of Geneva and Toulouse School of Economics
Silvia Rossetto, Toulouse School of Economics
Gwenael Roudaut, Ecole Polytechnique & Ministère Energie DD et ecologie
Simone Sepe, Toulouse School of Economics
Bernard Sinclair Desgagné, HEC Montréal & Ecole Polytechnique
Jean Tirole, Toulouse School of Economics
Nicolas Treich, Toulouse School of Economics

Doctoral and post-doctoral students

Thomas André, Schneider Electric & Ecole Polytechnique
Aurélien Bigo, Ecole Polytechnique
Vincent Bouchet, Ecole Polytechnique
Elena Escrig Olmedo, Universite Jaume I & Ecole Polytechnique
Madalena Ferrana, Toulouse School of Economics
Aymeric Guidoux, Ecole Polytechnique
Hung-Thuy Nguyen, Toulouse School of Economics
Yixin Wang, Toulouse School of Economics
Maxime Wavasseur, Toulouse School of Economics
Yuting Yang, Toulouse School of Economics

Main research achievements

The research chair on Sustainable Finance and Responsible Investment («Chaire Finance Durable et Investissement Responsable», or Chaire FDIR) was launched in 2007, at the initiative of the French Asset Management Association AFG, by Christian Gollier from Toulouse School of Economics and Jean-Pierre Ponssard from Ecole Polytechnique. The inaugural lecture was given by Jean Tirole, the 2014 recipient of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel and a prolific contributor to the Chaire since its inception.

Now co-directed by Sébastien Pouget from Toulouse School of Economics and Patricia Crifo from Ecole Polytechnique, Chaire FDIR has been running for ten years with about twenty internationally renowned scholars and has produced numerous scientific contributions to our understanding of responsible finance. The table below summarizes the main figures about Chaire FDIR, and more detailed information about its achievements is provided thereafter.

The Chaire FDIR in a few numbers	
The Chaire	-> Started in **2007** -> **20+** researchers -> **2** academic institutions: Toulouse School of Economics and Ecole Polytechnique -> **9** partners: Association Française de la Gestion Financière (AFG), Allianz Global Investors France, Amundi AM, Caisse des dépôts, Candriam France, Edmond de Rothschild AM, Fonds de Réserve pour les Retraites, Groupama AM, HSBC Global AM (France), La Banque Postale AM
Research	-> **4** fields of practical implications (more information offered is below): • Long-term risk valuation • Design and marketing of SRI funds • Governance, CSR and financial performance • Engagement and dialogue -> **30+** academic workshops with partners -> **10+** bilateral scientific meetings with partners -> **100+** scientific studies published -> **100+** presentations in scientific conferences -> **4** books on responsible finance -> **8** scientific conferences organized
Teaching	-> **15+** PhD students -> **10+** courses every year on responsible finance topics (Master Level)
Visibility	-> **18+** articles in popular press (Le Monde, Les Echos, La Tribune, Libération, Financial Times, L'opinion) -> **5** Best PhD Thesis awards from FIR-PRI -> **1** Nobel prize in Economic Science for Jean Tirole -> **1** Peace Nobel prize for Christian Gollier as a member of the IPCC -> **2** Best Young Economist nominations for Patricia Crifo and Edouard Challe -> **1** nomination as Chevalier de l'Ordre National du Mérite for Patricia Crifo -> **1** nomination as Chevalier de l'Ordre des Palmes Académiques for S. Pouget -> **1** Best Paper award for Sébastien Pouget from EIF -> **4** Cahiers de l'Institut Louis Bachelier dedicated to the Chaire FDIR

The main objectives of the Chaire FDIR are to:

- Contribute to objectivizing the arguments to show that the development of sustainable finance and responsible investment is – in today's world – not only necessary but also possible;
- Develop research methodologies allowing to better identify and integrate non-financial criteria into the analysis of value creation;
- Form a world-class scientific team on SRI.

To achieve these objectives, the Chaire FDIR carries out research around three main topics:

- Long-term ESG performance and risk evaluation,
- Corporate Governance,
- Shareholder engagement.

For the period 2016-2018, the general assembly meeting of the Association FDIR, the researchers of the Chaire FDIR, in conjunction with the sponsors, have defined five high-priority research projects that pertain the three main topics of the Chaire FDIR. The achievements on these five high-priority projects for the year 2018 are detailed below.

A) The five high priority research projects' achievements

The following section presents the main results and state of development of the five high priority projects defined for the period 2016-2018. All projects have produced academic papers presented at conferences and workshops with the Chaire sponsors. Some papers have been published in academic journals and others will be published in the coming years. A summary of each project's achievements is provided after the project's summary.

1. *How governance affects firm value – Coordinated by Simone Sepe (TSE)*

Objective

Over the past 20 years, empirical studies have gained tremendous importance in corporate governance discussions. These studies have largely supported the view that governance arrangements protecting directors and managers from removal increase the room for moral hazard by insulating insiders from beneficial disciplinary forces, reducing shareholder and firm value. On this view, "good" (i.e., value-increasing) corporate governance is largely understood today as being about stronger shareholder rights. Instead, managerial protection from shareholder removal, commonly referred to as "entrenchment", epitomizes "bad" (i.e., value-decreasing) corporate governance. The objective of the project is to gather new empirical evidence on what matters in corporate governance. In particular, the project aims at understanding whether corporate governance measures traditionally identified as protective, therefore inducing managers and directors' entrenchment, have a detrimental effect on firm value.

Methodology

For this project, a unique dataset that covers thirty years of corporate governance in the US, from 1978 to 2008, has been gathered. These data enable to distinguish between two types of corporate governance arrangements, which were previously uniquely identified as protective arrangements, and therefore considered as bad governance mechanisms.

Precisely, this new data separates those protective arrangements that require the agreement of shareholders (i.e., "bilateral protection arrangements") from the protective arrangements that *do not* require shareholder approval (i.e., "unilateral protection arrangements"). The first category covers staggered (or classified) boards and supermajority requirements. The second category covers for instance poison pills and golden parachutes. The project investigates whether bilateral or unilateral arrangements have an impact on firm value.

The logic underlying these tests is that unilateral protection arrangements are indicative of bad governance because their "dictatorial" nature makes it more likely that moral hazard motivates their adoption, to the detriment of shareholders. Bilateral protection arrangements instead can be consistent with best governance practices because it may be in the shareholders' interest to limit their own rights, if doing so involves a beneficial bilateral commitment by boards and shareholders to corporate stability and longer-term investment strategies.

Main results

This project has given rise to several new insights. The first set of results relates to the long standing debate on the impact of staggered boards on firm value. While the earlier literature has often concluded that staggered board, as part of an entrenchment strategy by CEOs, negatively affects firm value, research undertaken by Simone Sepe and his coauthors show that staggered boards can positively impact firm value when firms are more innovative, or when they have relationships with a major stakeholder (a large customer, or a strategic alliance).

Further developments extend the above analysis to a larger set of protective corporate governance arrangements. This led to the construction of a novel measure of the corporate governance Entrenchment index, by splitting the latter into two sub-indices, depending on whether these arrangements have been unilaterally adopted by the board of directors, or adopted jointly by the board and the shareholders. Simone Sepe and his co-authors have shows that those arrangements adopted jointly by the board and by the shareholders are positively associated to firm value.

A third set of analyses has explored the value of adopting poison pills -or shadow pills, as another example of highly-debated governance mechanism. Precisely, the research analyzes the value impact of *the right to* adopt a poison pill on long-term firm value, exploiting the quasi-natural experiment provided by the staggered adoption of poison pill laws in 35 U.S. states over the period 1986 to 2009. In line with the earlier results on staggered boards, Sepe and coauthors document that the availability of a shadow pill results in an economically and statistically significant increase in firm value, especially for firms more engaged in innovation or with stronger stakeholder relationships.

Implications

The results from this project bear major implications for the debate on the means and ends of corporate governance. First, the results shed light on how to promote a long term view inside the firm by developing the idea that **directors need to be protected from removal in the short term to be induced to carry on long term projects.** Conversely, as a director's tenure matures and market prices are more likely to catch up with directors' informational advantage, shareholders become better positioned to discipline directorial and managerial actions. A main message of this project is that **corporate governance is not a one-size-fits-all model, and that responsible investors should take into account the specific nature and characteristics of companies to determine appropriate governance practices.**

Project's achievements

The project has been presented at two workshops with the sponsors, as well as at several academic and general audience conferences. It has generated the following publications.

- Cremers Martin, Lubomir Litov and Simone Sepe, 2017, Staggered Boards and Firm Value, Revisited, *Journal of Financial Economics* 126(2), p. 422-444.
- Cremers, Martin, Saura Masconale, and Simone Sepe, 2016, Commitment and Entrenchment in Corporate Governance, *Northwestern University Law Review* 110, 727-810.
- Cremers, Martin, Saura Masconale and Simone M. Sepe, 2017, CEO Pay Redux, *Texas Law Review* 96, p. 205-272.
- Cremers, Martin and Simone Sepe, 2016, The Shareholder Value of Empowered Boards, *Stanford Law Review* 68, 67-148.
- Cremers, Martin and Simone Sepe, 2018, Investors' Time Preferences and Corporate Governance, *Seattle University Law Review* 41, 387-418
- Sepe, Simone, 2016, Staggered Boards: Practice, Theory and Evidence, in *Research Handbook On Mergers And Acquisition*, Claire Hill and Steven Davidoff Solomon eds, *Research Handbooks in Corporate Law and Governance series*, Edward Elgar, 200-215
- Sepe, Simone, 2017, Board and Shareholder Power, Revisited, *Minnesota Law Review* 101, 1377-1455.
- Sepe, Simone, 2018, What type of board creates the most long term value for US companies?, *Les Cahiers Louis Bachelier* 30

2. *Institutional Investors as Active Owner – Coordinated by Sébastien Pouget (TSE)*

This project studies whether and why institutional investors engage companies to reduce negative externalities they exert on society. To study institutional investors' engagement to reduce companies' negative externalities, we focus on votes at shareholder meetings on resolutions related to both environmental and social issues. Such a focus is useful because it allows us to quantify one type of engagement -shareholder voting- on clearly identified externality issues. To be even more precise in terms of identification, we also restrict our attention on greenhouse gas emissions, a clear example of externality produced by companies.

Two basic arguments warrant institutional investors to be active in engagement related to externality issues. The first argument rests on the universal owner logic (see, e.g., Monks and Minow, 1995, Hawley and Williams, 2000, Dimson, Kreutzer, Lake, Sjo, and Starks, 2013, and Azar, 2017). Large institutional investors own shares in virtually all listed companies and have a long horizon. As universal owners, they might engage firms to mitigate the negative externalities imposed on other firms held in their portfolios, to avoid deteriorating their overall value. For example, they may want to consider the negative economic impact that the GHG emissions of a firm might have on other companies' businesses through water, food, health or migration issues.

A second argument that calls for institutional investors to be active in engagement on externality issues is related to the delegated philanthropy logic (Benabou and Tirole, 2010). Institutional investors such as pension funds, mutual funds and sovereign funds invest on behalf of clients or citizens who may have preferences regarding externalities that differ from the ones of companies' managers. One can for example think that the level of global risk induced by a firm related to climate change or nuclear energy might not be valued in the same manner by corporate managers and by institutional investors who represent clients or citizens.

To understand what motivation may induce investors to care about externalities generated by companies, we propose a case study that compares the Norway Fund and BlackRock, two emblematic institutional investors. These two investors have assets under management of more than $1 trillion and $5 trillion, respectively, in 2017. The two investors have a large, global and well-diversified equity portfolio, and are therefore universal owners. The Norway Fund has also a delegated philanthropic mission as it is monitored by the parliament of Norway and a Council on Ethics. Given their size, the two investors are likely to have a significant influence on corporate behavior across the world.

Methodology

We gathered data that cover the year 2014 and include BlackRock and the Norway Fund votes at 35,382 resolutions for 2,796 firms across the world. Our data also include managers' recommendations as well as various financial and extra-financial characteristics of firms. We classified resolutions into several categories according to the sponsor (management versus shareholders) and the topic (financial, governance, social and environmental issues). We consider resolutions on environmental and social issues as dealing with externality issues. In robustness analyses, we specifically look at climate change resolutions as they are clearly related to externality issues. Our variable of interest is the opposition of investors to management on externality resolutions. These resolutions are for the most part filled by shareholders and opposed by managers.

Results

We find that both BlackRock and the Norway Fund oppose management more frequently on environmental and social resolutions than on financial ones, which we use as a benchmark. This result suggests that universal ownership prompts institutional investors to engage corporations on externality issues. However, only the Norway Fund puts more emphasis on shareholder resolutions concerning externalities - despite management opposition - than on those relating to governance. Our results hold with and without country fixed effects. Investors' holdings seem not to affect their voting policy. Our results are even more economically and statistically significant when we focus on environmental externalities related to climate change. Overall, our findings suggest that both universal ownership and delegated philanthropy provide incentives for institutional investors to combat negative externalities generated by firms. Delegated philanthropy, though, seems to be a stronger motivation.

Implications

Our results suggest that corporations are unlikely to be firmly disciplined by institutional investors simply because these investors hold well-diversified portfolios. Instead, we find **that institutional investors' corporate engagement policies ought to reflect the values of their clients or beneficiaries**. It thus seems important that institutional investors should know the main externality issues that their clients or beneficiaries want investee firms to address. **In this respect, pass-through voting, where institutional investors collect votes from their clients and beneficiaries and send them to general meetings, might be useful.**

Our findings also indicate that **there is a clear difference of objective between various shareholders** regarding companies that have negative externalities. Hence the basic tools used in corporate finance, such as net present value, need to be revisited. In their most stripped-down form, these tools consider only purely financial wealth created by the firm. In the case of a firm that emits externalities, which have, by definition, no direct financial consequences for the firm itself, **these tools should be adapted to take into account the social value of those externalities. One way to measure them is through cost-benefit analysis.**

Project's achievements:
The project has been presented at one workshop with the sponsors, as well as at several internal seminars. It has given rise to the following publications.

- Brière, M., S. Pouget, and L. Ureche-Rangau, 2018, BlackRock vs Norway Fund at Shareholder Meetings: Institutional Investors' Votes on Corporate Externalities, wp ssrn
- Ureche-Rangau, L., 2018, How do institutional investors behave with regards to corporate greenhouse gas emissions?, *Cahiers Louis Bachelier* 30

3. *ESG factors and the performance of small and mid cap companies – Coordinated by Sébastien Pouget (TSE)*

Objective
This project proposes an empirical investigation of small and mid cap companies' strategic behavior regarding Environmental, Social and Governance (ESG) factors, and aims at testing how it is associated with their risk-return profile on the stock market as well as their economic performance.

There are several reasons to believe that small and mid cap companies are different from large publicly traded companies in terms of business strategies, in particular regarding ESG factors. First, small and mid cap companies are more likely than larger firms to be owned and/or operated by their founder or by the founder's family members (Adams, Almeida, and Ferreira, 2005, and Fahlenbrach, 2009). This provides them with a long-term view and in turn a commitment power that can have valuable business consequences. For example, commitment power of executives and shareholders might enable small and mid cap companies to implement innovative human resources strategies, i.e. providing insurance to their employees in case of downturns or failures in order to increase their level of implication or creativity (Sraer and Thesmar, 2007). Also, a long-term horizon might enable the firm to develop innovative environmental strategies that necessitate efforts in the short run but are beneficial in the long run (Benabou and Tirole, 2010).

Second, even small and mid cap companies that are not owned and managed by founders or their families could enjoy a high level of economic performance: the relative illiquidity of small and mid cap equity markets provides stronger incentives for shareholders to monitor and engage with management (Maug, 1998).

Methodology
We focus on French small-mid cap companies for which we have a unique sample regarding the global performance of firms, including economic, financial and non-financial performances. Data come from various sources. Firms' ESG performance is obtained thanks to Ethifinance, a Paris-based company that builds and maintains a database recording

important variables regarding firms' strategies on ESG factors. We use Ethifinance database from 2009 to 2013 that includes 241 French firms. Nearly 74% of these firms are listed on the CAC Mid & Small Index.

We define as family firms the firms in which the founder or a member of his or her family by either blood or marriage own more than 20% of the equity. Family firms constitute over 64% of the database, that is, 163 family firms. Within these firms, families own on average 52% of the outstanding equity. Moreover, family involvement in the management of their firms is widespread: 53% of the firms in the database have a founder or a member of his or her family as CEO.

Our analysis is based on an instrumental variable methodology based on industry-wide characteristics. In order to mitigate endogeneity biases of shareholdings by families, asset managers and asset owners, we instrument these variables by replacing them by their predicted values based on the characteristics of the industry in which the firm operates.

Results

We first explore the effect of ownership structure on firms' accounting performance, market valuation and risk taking. We find that family ownership is positively and significantly associated with accounting performance and market valuation. Moreover, we find that employee ownership fosters family firms' accounting performance. These findings are in line with previous studies, see, e.g., Anderson and Reeb (2003), Villalonga and Amit (2006), Sraer and Thesmar (2007). In addition, we find that family and employee ownership are negatively associated with firm's risk, as measured by the volatility of stock returns. Our results are in line with the long-term commitment policy and show that employee shareholders foster higher accounting performance and lower stock market volatility for family firms. Nevertheless, it seems that employee ownership has no effect on the stock market value of family firms and non-family firms. Regarding family's involvement in management, our results are in line with previous studies. We find that founder-CEO firms have higher accounting performance and lower risk than non-family firms. However, it seems that the stock market value of firms managed by a descendant is lower than that of non-family firms and family firms managed by a professional, despite delivering a higher accounting performance and a lower stock market volatility.

We next examine the effect of ownership structure on firms' CSR performance. Our results show that employee and family ownership and control enhance the firm's CSR performance. In particular, we find that founder-CEOs are positively and significantly associated with greater CSR performance than non-family firms. Moreover, employee shareholders enhance firms' CSR performance and their effect is greater in family firms. Our results show that founder-CEOs of small&mid caps family firms have higher CSR performance in several dimensions (Social, Environment and Stakeholders) than those of large family firms.

Implications

Our results have several implications for responsible investment fund managers. First, our analysis broadly supports the idea that family firms and firms with higher stock ownership are able to implement a long-term strategy, that reduces risk, and enhances accounting profit and CSR performance. Interestingly, our results also show that the market does not incorporate all of these aspects. In particular, the positive impact of employees' stock-ownership and the presence of a descendant as a CEO do not seem to be reflected in firms' stock price.

Project's achievements:
The project has been presented at one workshop with the sponsors, as well as at several internal seminars. It has given rise to the following publications.

- Jaballah, J. and S. Pouget, 2017, Facteurs ESG et performance des Petites et Moyennes Capitalisations, *Edmond de Rothschild asset Management, Les Chroniques de l'ISR* 12
- Jaballah, J., and S. Pouget, 2018, Family and employee ownership in small and mid caps: Impact on financial and extra-financial performance, wp

4. *The measurement of ESG performance and risk: qualitative ratings or quantitative metrics? – Coordinated by Patricia Crifo (Ecole Polytechnique)*

Objective
This project proposes to examine how different combinations of Corporate Social Responsibility (CSR) dimensions affect corporate economic performance with data on CSR performance, that is based on quantitative metrics of CSR-related management practices rather than qualitative extra-financial evaluation through scores or ratings. As emphasized by Chatterji et al. (2009), extra-financial ratings are rarely evaluated and have been criticized for their own lack of transparency.

Methodology
To measure CSR-related practices, this project uses variables extracted from two French statistical surveys consisting in large scale databases including more than 10,000 small and mid caps (firms with more than 10 and 500 employees) in 2006 and 2011.
The first database relies on the 2006 Organizational Changes and Computerization survey administered by the National Institute for Statistics and Economic Studies (INSEE), the Ministry of Labor, and the Center for Labor Studies. The sample extracted from this survey includes 10,293 firms.
The second database relies on the 2011 Sustainable Development survey (Enquête sur le Développement Durable et la responsabilité sociétale des entreprises), administered by the National Institute for Statistics and Economic Studies and the Ministry of Ecology, Sustainable Development and Energy. This survey gives very detailed information on CSR implementation and intensity, as well as firm motivation for CSR commitment, for a representative sample of business units with at least 10 employees, including all the business groups with more than 500 employees. The sample extracted from this survey includes 8,775 firms.

Mains results

Overall, the results show that an average gap of 13% in economic and financial performance is observed between businesses that put CSR practices in place and those that do not, ranging from 5% for client relationships to 20% for the "human resources" dimension. When looking into details as how responsible companies combine the various CSR practices, it may be shown that high-performing businesses appear to seek complementarity between CSR practices rather than a simple accumulation of best practices. More precisely, combining responsible green and customer & supplier strategies improve firm performance more than combining responsible social and customer & supplier strategies. Finally, when looking at sectoral effects, we observe that companies belonging to sectors very exposed to controversies (agri-food, intermediate goods, and energy industries) adopt more widely responsible practices. The same happens in companies that focus their strategy on quality and differentiation, business networks, outsourcing and internationalization.

Regarding CSR motivation and disclosure, while pro-social CSR tends to be associated with environmental management through soft practices; strategic CSR is associated with the three ESG pillars through hard practices (labels and monitoring tools). When considering CSR awareness versus greenwashing, many companies have improved their own environmental performance, but while corporate political actions such as lobbying can have a greater impact on environmental quality, they are ignored in most current sustainability metrics. It is time therefore for these metrics to be expanded to assess firms based on the sustainability impacts of their public policy positions.

The last set of results in this project focus on the necessary transition from ESG evaluation to impact assessment. In fact, academic research on non-financial information has gained maturity but from an investor's perspective, the literature focuses on the relationship between financial and extra financial performance. However, a new research field has emerged recently on the extra financial impacts (rather than performance) from investment. We have contributed to this literature by providing a better understanding of the contribution of non-financial information to impact assessment development, and the main stakes that it should address.

Implications

Our results have several implications for responsible investing.

When considering micro-level data such as those extracted from French large-scale INSEE surveys, it appears that barely a quarter of French businesses with over 9 employees state that they are truly involved in CSR. What is more, 60.4% of them state that they do not know the notion of CSR. Yet, many small and medium size companies do develop interesting responsible practices, in particular based on a qualitative approach aimed at choosing good synergies and overall consistency. And such synergies pay in terms of labor productivity and performance. These findings suggest that it is important to measure practices at the establishment level.

Moreover, regarding the debate on qualitative ratings versus quantitative metrics, two main trends for the future of the Sri literature have been investigated. The first one relates to the necessity to enable the assessment of corporate political responsibility as part of corporate social responsibility. From this perspective, rating systems and metrics should demand such information from firms and include evaluations of corporate political activity in their assessments of corporate environmental responsibility. The second trend relates to impact assessment, highlighting the necessity to disentangle impact assessment from performance measurement and to work on the aggregation of indicators at the fund level.

Project's achievements:

The project has been presented several presentations in academic and policy seminars and conferences. It has given rise to the following publications.

- Lyon T, Delmas M, Maxwell J, Bansal T, Chiroleu-Assouline M, Crifo P, Durand R , Gond JP, King A, Lenox M, Toeffel M, Vogel D, Wijen F. 2018. CSR Needs CPR: Corporate Sustainability and Politics. California Management Review.
- Mottis N., Arjaliès DL., Crifo P., Bouchet, V. 2018. Mesure d'impact et investissement socialement responsable. Working paper.
- Crifo P., Diaye MA., Pekovic, S. 2016. CSR related management practices and Firm Performance: An Empirical Analysis of the Quantity-Quality Trade-off on French Data. International Journal of Production Economics. 171 (3), 405-416.
- Benhamou S., Diaye MA., Crifo P. 2016. RSE et compétitivité. Evaluation et approche stratégique. Etude France Stratégie. 150 pages.

5. *Sovereign credit ratings and interest rates – Coordinated by Patricia Crifo & Edouard Challe (Ecole Polytechnique)*

This research priority effectively covers two specific projects:

- Measuring the effect of government ESG performance on sovereign borrowing cost
- Country governance and debt

Measuring the effect of government ESG performance on sovereign borrowing cost

Objective

There is a growing literature supporting the view that a country's environmental, social and governance performance could have a material impact on its ability to repay sovereign debt (and therefore yield spreads) focusing on the determinants of market perceptions of default risk. An influential paper by Reinhart, C., K. Rogoff, and Savastano, M., (2003) for instance examines the Institutional Investor ratings, a panel of economists and sovereign risk analysts who rate countries according to their perception of a risk of default; according to the authors, two factors explain 75\% of the cross-country variance of the rating: the debt-to-GNP ratio, and the history of bad policies (hyperinflation, previous episodes of default or restructurings).

The authors argue that the fact that institutions and history matters in determining crises is a proof of their theory of "debt intolerance" i.e. the idea that some countries have a structural tendency to default, independently of other economic or financial factors.
In turn, a country's ESG risk would help documenting such a "structural tendency to default". As such, a country's access to and management of its natural resources, or a government's ability to implement economic policies to generate sufficient revenues to service its debt in fact impacts the country's overall risk profile, thereby affecting its ability to repay sovereign debt both in the short and in the long run.
If governance (political) factors have received a considerable attention in the literature, environmental and social factors have been less scrutinized, partly because of lack of comparable data.
The main question raised (and hypothesis tested) in this project hence is the following : how can we quantifyi the relative impact of environmental and social factors, in addition to governance (political) factors in estimating the pricing of sovereign risks?

Methodology
We study how sustainability affects sovereign bond spreads by conducting two econometric analyses based on a sample of 20 OECD countries over the period 1996–2012 with data sets from the following sources:

- the World Bank database providing information on macroeconomic variables (GDP, inflation debt, imports, reserves and trade openness), and ESG quantitative variables from the World Development Indicators (WDI) and the World Governance Indicators (WGI)
- the Thomson-Reuters Datastream database, providing the yield on sovereign bonds as well as S&P ratings;
- the Vigeo Sustainability Country Rating database, providing information on ESG qualitative performance;
- the ISO database giving the number of ISO 14001 certified firms in each of our 23 countries.

Main results
Our main hypothesis is that good ESG performance plays an economic role: It signals a country's commitment to sustainability and long-term orientation and is a buffer against negative shocks, leading to lower sovereign bond yield spreads. We show that OECD countries with good ESG performance are associated with lower default risk and lower sovereign bond yield spreads. Moreover, we show that the social and governance dimensions have a significant negative association with sovereign bond yield spreads, whereas the environmental dimension does not. The relationship between sovereign risk and a country's ESG performance also seems more significant and stronger in the euro area countries compared to the other advanced countries. Finally, our results reveal a stronger influence of

ESG performance during the global financial crisis.

Implications

Our results suggest that ESG evaluation could play a role in assessing country risk and its location and distribution in the financial system. By facilitating investment decisions, ESG assessments can help investors in achieving a balance in the risk return profile and at the same time assist countries in accessing capital at a low cost.

Project's achievements:

The project has been presented several presentations in academic and policy seminars and conferences. It has given rise to the following publications.

- Capelle-Blancard G., Crifo P., Diaye MA., Oueghlissi R., Scholtens B. 2018. Environmental, Social and Governance (ESG) performance and sovereign bond spreads: an empirical analysis of OECD countries. Journal of Banking and Finance.
- Crifo P., Diaye MA., Oueghlissi R. 2017.Measuring the effect of government ESG performance on sovereign borrowing cost. Quarterly Review of Economics and Finance. 66, 13-20.

Country governance and debt

Objective

The second projects on sovereign credit ratings and interest rates is that pursued on the topic of *country governance and debt*. This line of work examines empirically and theoretically the links between the amount of external debt (both public or private) of a country and the quality of its governance, that is, its "institutions" (broadly defined, following Douglas North, 1991, as "the set of rules and constraints that shape economic behavior and incentives"). To be more specific, the purpose of this line of research is to shed light on how cheap capital inflows from abroad affects a government's incentives to maintain institutional quality. While the scope or the project is worldwide, it may help shed like on the dynamics of particular sets of countries; in particular, the euro area has experienced a divergence in both institutional quality and economic performance between the north and the south in the past couple of decades (as stressed by, e.g., Fernandez-Villaverde et al., 2013), and our anlaysis uncovers one of the possible reasons for this divergence.

Methodology

The project uses both theory and empirical analysis. Theoretically, we construct a small-open economy model of the "soft budget constraint" syndrome. Soft budget constraints arise when the government cannot commit not to bail out inefficient projects *ex post*, once their inefficient nature has been revealed (Kornai, 1979; Dewatripont and Maskin, 1995; Kornai et al., 2003; Maskin, 1996). The theoretical innovation of the project is to embed this well-known microeconomic friction into a small-open economy model, wherein easy access to external capital may worsen the soft budget constraint syndrome (by reducing the direct cost of bailing out inefficient projects, and by making it easier to compensate domestic lenders for their losses). On the empirical side, the paper uses state-of-the art panel econometrics to evalutate the theoretical predictions of the model. Particular care is given to the issues of endogeneity (of both institutions and capital flows) and reverse causality (from country governance to capital flows). Also, a variety of indicators of country governance are used: not only the well-known World Governance Indicator (WGI), but also alternative and complementary indicators from the Heritage Foundation, the Fraser Institue, and the International Country Risk Guide.

Main results
The main theoretical implication of the model is that cheaper and easier funding from abroad desincentivizes governments from maintaining the quality of institutions, thereby generating an institutional decline. This prediction is then tested on a broad panel of countries, with indicators of country governance as the explained variable and capital inflows (measured as medium-run current account over GDP ratios) and the explanatory variable. The basic regressions as well as numerous robustness checks confirm the predictions of the theory: there is a systematic negative relation between capital inflows and the quality of domestic institutions. Besides this systematic relation (which holds worldwide), we also make a focus on the intra-euro area divergence between the north and the south. Our analysis suggests that institutional divergence, driven by heterogenous capital inflows, explains some of the economic divergence within the area that one observes since the mid 1990s.

Project's state of achievement:

- E. Challe, J.I. Lopez and E. Mengus, Institutional Quality and Capital Inflows: Theory and Evidence, Working Paper, Resubmitted to *Journal of International Money and Finance*

B) Other research projects' achievements

Researchers have carried out other projects related to the general topics of the Chaire. These projects have been presented at workshops with sponsors and are detailed below.

1. "An innovative approach to the assessment of hydro-political risk: A spatially explicit, data driven indicator of hydro-political issues", by Arnaud Reynaud (TSE)

Arnaud Reynaud has worked on assessing what factors can affect the occurrence of water management issues in shared water regions.

Objective

Competition over limited water resources is one of the main concerns for the coming decades. Although water issues alone have not been the sole trigger for warfare in the past, tensions over freshwater management and use represent one of the main concerns in political relations between riparian states and may exacerbate existing tensions, increase regional instability and social unrest. Previous studies made great efforts to understand how international water management problems were addressed by actors in a more cooperative or confrontational way. In this study, we analyze what are the pre-conditions favoring the insurgence of water management issues in shared water bodies, rather than focusing on the way water issues are then managed among actors. The objective is two-fold: First, we aim at highlighting the factors that are more relevant in determining water interactions across political boundaries. Second, our objective is to map and monitor the evolution of the likelihood of experiencing hydro-political interactions over space and time, under changing socioeconomic and biophysical scenarios, through a spatially explicit data driven index.

Methodology

To assess the risk of water management issues in shared water regions, we propose an innovative analysis of past episodes of conflict and cooperation over transboundary water resources (jointly defined as "hydro-political interactions").

Historical cross-border water interactions are used as indicators of the magnitude of corresponding water joint-management issues. We correlate these data with information about river basin freshwater availability, climate stress, human pressure on water resources, socioeconomic conditions (including institutional development and power imbalances), and topographic characteristics. This analysis allows for identification of the main factors that determine water interactions, such as water availability, population density, power imbalances, and climatic stressors.

The resulting model is used to map at high spatial resolution the probability of experiencing hydro-political interactions worldwide. This baseline outline is then compared to four distinct climate and population density projections aimed to estimate trends for hydro-political interactions under future conditions (2050 and 2100), while considering two greenhouse gases emission scenarios (moderate and extreme climate change).

Results

The combination of climate and population growth dynamics is expected to impact negatively on the overall hydro-political risk by increasing the likelihood of water interactions in the transboundary river basins, with an average increase ranging between 74.9% (2050 – population and moderate climate change) to 95% (2100 - population and extreme climate change). Future demographic and climatic conditions are expected to exert particular pressure on already water stressed basins such as the Nile, the Ganges/Brahmaputra, the Indus, the Tigris/Euphrates, and the Colorado. The results of this work allow us to identify current and future areas where water issues are more likely to arise, and where cooperation over water should be actively pursued to avoid possible tensions especially under changing environmental conditions. From a policy perspective, the index presented in this study can be used to provide a sound quantitative basis to the assessment of the Sustainable Development Goal 6, Target 6.5 “Water resources management”, and in particular to indicator 6.5.2 “Transboundary cooperation”.

2. Corporate Social Responsibility and Corporate Governance: Board members, Investor relations and executive compensation programs by Patricia Crifo (Ecole Polytechnique), together with Aymeric Guidoux, Gwenael Roudaut, and Elena Escrig Olmedo

Objective

This project analyses responsible governance practices (RGP) and its relationship with firm performance by considering two main components of corporate governance : boards of directors (BoDs) on the one hand and in particular the proportion of independent and expert directors, and executive compensation programs on the other hand , and in particular the the inclusion of CSR criteria in executive compensation contracts (CSR contracting).

Methodology

Our analysis is based on econometric estimations using two sets of data: the first one is based on French listed companies (the SBF250 index, that is the 250 largest companies by market capitalization and by trading volumes on Euronext Paris) for the 2003-2011 period; and the second one focuses on a large sample of public companies in OECD countries (more than 3400 firms) for the 2000-2015 period.

Results

Regarding RGP and the role of BoDs, our first main result is to document a significant negative relationship between independence and accounting performance over the period 2003-2011. This result suggests that, in the French context, the costs of independence (i.e. the informational gap supported by independent directors compared to insiders and affiliated directors) outweigh the benefits of independence (i.e. the reduction in agency costs). Our second main result focuses on a subsample of the SBF120 (120 largest French capitalization), and shows that on the one hand the negative correlation between board independence and firm performance is smaller when directors have industry-specific expertise or social connections with other board members; and on the other hand, independent directors are more likely to be selected based on individual ability. Focusing on a subset of the 120 biggest capitalization, we further observe that corporate sustainability appears positively correlated with the proportion of inside directors and negatively correlated with expert directors.

Regarding the inclusion of CSR criteria in executive compensation contracts, in order to encourage executives to sacrifice short-term pay-offs for long-term gains and stakeholder engagement, we show that that the adoption of CSR contracting leads to a decrease in firm value but (an increase in CSR performance, especially responsible behaviors towards customers and suppliers and community involvement. Moreover, we explore the moderating role of the corporate governance model and find that once we take into account whether the company has a governance model oriented toward its shareholders or its stakeholders, the results revert. In particular, for companies with a stakeholder governance model, the impact of CSR contracting becomes non-significant on financial performance, and positive on all environmental and social performance indicators

Implications

Our results have several implications for professionals and managers. First, we identify two opposing forces in the board independence – firm performance nexus: : one related to the director nomination process (based on high ability), and the other one related to board functioning (based on an informational deficit). Second, we show that introducing extra-financial criteria in executive compensation programs provides an additional tool among other governance mechanisms that boards of directors can use to incentivize managers to take value-enhancing actions, provided that the corporate governance bodies are aligned with this long-term strategy

Project's achievements:

The project has been presented several presentations in academic and policy seminars and conferences. It has given rise to the following publications.

- Crifo P. , Escrig-Olmedo E., Mottis N. 2018. Corporate Governance as a Key Driver of Corporate Sustainability in France: The Role of Board Members and Investor Relations. Journal of Business Ethics.
- Crifo,P., Rebérioux, A. 2018. Le gouvernement d'entreprise - nouveaux enjeux : introduction. Revue d'économie financière. 130, 9-18.
- Crifo, P., Roudaut, G. 2018. Board independence and the monitoring-advising trade-off in France. Working paper.
- Roudaut, G., Rebérioux A. 2018. Le conseil d'administration : enjeux de gouvernance et de responsabilité. Revue d'Economie Financière, 2018/2 (130), pp. 163 à 180.
- Cavaco S., Crifo P., Réberioux A., Roudaut G. 2017. Independent directors: less informed, but better selected than affiliated members ? Journal of Corporate Finance. 43, 106–121.
- Cavaco S., Challe E., Crifo P., Réberioux A., Roudaut G. 2016. Board independence and operating performance: Analysis on (French) company and individual data. Applied economics.
- Crifo P., Rebérioux A. 2016. Corporate Governance and Corporate Social Responsibility: A typology of OECD countries. Journal of Governance and Regulation. 5(2), 14-27.

- Crifo P., Diaye MA., Oueghlissi R., Pekovic S. 2016. What drives firm's Corporate Social Responsibility: The role of ownership concentration. in Global Perspectives of Corporate Social Action and Social and Financial Performance. Manos & Drori eds. Palgrave Mc Millan: New York. 183-206.

References mentioned in sections A and B

Adams, Almeida, and Ferreira, 2005, Powerful CEOs and their impact on corporate performance, Review of Financial Studies 18, 1403-1432

Anderson and Reeb, 2003, Founding-family ownership and firm performance: evidence from the S&P 500, Journal of Finance 58, 1301-1327.

Azar, 2017, Portfolio diversification, market power, and the theory of the firm, *Working Paper*

Chatterji, Levine, and Toffel, 2009, How well do social ratings actually measure corporate social responsibility? Journal of Economics & Management Strategy 18, 125–169

Dewatripont, M. and E. Maskin,1995, Credit and Efficiency in centralized and decentralized economies, Review of Economic Studies, 62, 541-556.

Dimson, Kreutzer, Lake, Sjo, and Starks, 2013, Responsible investment and the Norwegian government pension fund global. Oslo: Norwegian Ministry of Finance.

Fahlenbrach, 2009, Founder-CEOs, Investment Decisions, and Stock Market Performance, Journal of Financial and Quantitative Analysis 44, 439-466

Fernandez-Villaverde, J., L. Garicano, and T. Santos, 2013, Political Credit Cycles: The Case of the Eurozone, Journal of Economic Perspectives, 27, 145-166.

Hawley and Williams, 2000, The emergence of universal owners: Some implications of institutional equity ownership. *Challenge* 43, 43-61

Kornai, J., 1979, Economics of Shortage, North-Holland.

Kornai, J., E. Maskin, and G. Roland, 2003, Understanding the Soft Budget Constraint, Journal of Economic Literature, 41, 1095-1136.

Maskin, E. S., 1996, Theories of the soft budget constraint, Japan and the World Economy, 8, 125-133.

Maug, 1998, Large Shareholders as Monitors: Is There a Trade-Off between Liquidity and Control? Journal of Finance 53, 65-98

Monks and Minnow, 1995, *Corporate Governance*. Cambridge, Mass: Basil Blackwell.

North, D. C., 1991, Institutions, Journal of Economic Perspectives, 5, 97{112.

Reinhart, C., K. Rogoff, and Savastano, M., 2003, Debt Intolerance, Brookings Papers on Economic Activity, 34, pp. 1–74.

Sraer and Thesmar, 2007, Performance and behavior of family firms: evidence from the French stock market, Journal of the European Economic Association 5, 709-751

Villalonga and Amit, 2006, How do family ownership, control and management affect firm value, Journal of Financial Economics 80, 385-417.

Project proposals for the renewal of the Chaire (2019-2021)

Researchers from Ecole Polytechnique and Toulouse School of Economics proposed 15 new research projects related to the general topics of the Chaire FDIR, to be developed during the new three years. As in the previous years, the partners of the Chaire discussed and voted to select 4 projects which are of high priority for their teams. These high priority projects will be presented at workshops, and their main contributions will be discussed in the Chaire final reports. The other projects may also be presented at workshops but will not be discussed specifically in the Chaire final reports.

1) Employees as directors (Catherine Casamatta, TSE and Sébastien Pouget, TSE)

Should employees be associated with the management of the firm that employs them? What is the impact on firm value of having employees seating at the board of directors? The objective of this project is to exploit recent changes in the French Law to shed light on these long-standing issues.

There are different reasons why the participation of employees at the board of directors can affect firms' strategy, and their resulting market value. For instance, employee's board participation can help overcome CEOs' short-termism and allow the firm to implement more long-term investment strategies (Acharya, Myers, and Rajan, Journal of Finance 2011). Relatedly, the presence of employees at the board can ensure that information flows smoothly between different levels of the hierarchy (either from top to middle management, or from middle management to top). Better information sharing should then lead to more informed board decisions and to a better implementation of these decisions. At the opposite, the presence of employees at the board can help top managers develop antitakeover strategies, at the expense of external shareholders. Or, the presence of directors with different objectives and horizons can burden the decision process and result in suboptimal choices. Which effects prevail, and which firms are more likely to be exposed to these effects is then an empirical issue.

Measuring empirically whether and how employees' participation at the board affects firms' decisions is a difficult task, to the extent that the nomination of employees as directors is an endogenous decision. Also, most existing research focuses on large firms (Ginglinger, Megginson, and Waxin, Journal of Corporate Finance 2011). The objective of this research is double:

- First, it is to identify theoretically the channels through which employees' participation at the board can affect firm value and strategy choices.
- Second, it is to exploit a recent evolution of the French legislation regarding mandatory employees' board representation in order to assess whether the presence of employees at the board changes firms' decision and market value. To do so, we will rely on the adoption of the 14 june 2013 Law (resp. the 17 August 2015 Law) that impose mandatory seats for firms employing more than 5000 (resp. 1000) employees in France. To identify a causal effect, we plan to implement a diff-in-diff strategy, by matching firms affected by the new law with similar firms whose number of employees is just below the threshold defined by the law.

2) Employee involvement in corporate decisions (Patricia Crifo, Ecole Polytechnique and Antoine Rebérioux, University Paris 7)

In the spirit of recent debates in France to redefine the role and missions of companies, the literature on worker involvement in corporate strategy and decision overcomes the restrictive approach of an employment relationship based only under the framework of subordination. Beyond this generic definition, the notion of employee involvement or participation covers a large number of practices and devices that are very different. In particular, worker involvement may be implemented at the operational and/or at the strategic level. The objective of this research project is to propose a novel analysis of worker involvement by developing four main analyses. First we propose to describe the various types of employee participation in corporate decisions (participation and work organization, participation and bargaining, financial participation and board-level participation). Second, we will examine employee participation in strategic decision via the company's governance structure. In particular, we will analyze the legal, economic and sociological determinants of such type of worker involvement and the diversity of national models of involvement. Third, we will examine the codetermination model, which is the most advanced type of worker involvement. We will investigate its functioning (designation and role of employee-directors, distinction between one-tier and two-tier board structure) and its expected impact on firm performance. In the fourth and last part of the project, we will examine the complementarity between the various forms of involvement to answer the following questions: what are the relationships between employee-directors and employee-shareholders? how do companies articulate boards with employee-directors and worker involvement at the operational and bargaining level ?

3) Carbon pricing under deep uncertainty (Christian Gollier, TSE)

Green investments generates social costs and social benefits that need to be compared in order to determine whether they are socially responsible. The problem is that most environmental benefits, such as reducing climate damages in the case of renewable energy, are not only distant in the future (35% of the CO2 emitted today will still be in the atmosphere by 2300), but they are also very uncertain in their intensity. How should we take account of this uncertainty when weighting these uncertain future environmental benefits with the current tangible cost of these investments? FDIR already financed my research on these questions in the past, and this agenda generated a set of publications that mostly focus on contexts where risk are Gaussian. This normality assumption allowed me to recommend using a normative version of the standard models from finance theory, adapted to the specificities of climate risks. In particular, I worked on the estimation of the CAPM "climate beta" to help experts pricing carbon with the right risk-adjusted "climate discount rate".

The problem of this approach based on normal distributions is that the risk profile of climate change is summarized by one single number, the climate beta. It is intuitive that this number, which is related to the correlation between long-term climate damages and long-term economic growth, expresses only one aspect of the full story. In reality, I believe that the risk of climate change cannot be summarized by that simple correlation, and that one should also focus at one happens in the extreme events, such as those that materialize when temperature increases by more than 5 degrees Celsius. We have learned from the recent financial crisis that correlations can shift quite radically in catastrophes, and the anticipation of what happens in these events is a key element of optimal risk management. I would like to explore the question of whether these ingredients would modify the way we estimate the social cost of carbon that should be used in our evaluation of the social responsibility of green investments. Valuing green investment is of course a crucial issue for policy makers. It is also of utmost importance for long term investment managers, who need tools to assess the value of these projects in order to define and implement an appropriate strategic asset allocation.

4) Impact assessment and SRI: Why and how investors use impact indicators? (Patricia Crifo, Ecole Polytechnique)

In this project we will use survey data to provide insights into why and how investors use impact assessment methodologies for their socially responsible products. Based on a sample of 120 questionnaires gathered in 2018 in France, we identify the main motivations for impact assessment, and the various assessment styles it takes in practice. A first preliminary and descriptive analysis of the data shows that simplicity and relevance of the impact assessment measure is the most frequent motivation, followed by comparability (capacity to be standardized). Among the various impact assessment styles, pure ESG indicators and engagement measures are the most widespread tools. An important impediment to the use of impact assessment is the lack of comparable standards and data availability.

We propose a more in-depth study of these data, using empirical (econometric) methods to identify the drivers and obstacles to impact assessment, its relevance to investment performance, in relationship with the actual or required indicators to be developed.

Publications and working papers 2018

Researchers of the Chaire FDIR have written some of these articles with researchers from other institutions located both in France and abroad.

- Bernard, C., C. Rheinberger and **N. Treich**, 2018, Catastrophe Aversion and Risk Equity in an Interdependent World, *Management Science* 64, 4490-4504
- Bratton, W. and **S. Sepe**, 2018, Corporate Law and the Myth of Efficient of Shareholder Control, wp
- Capelle-Blancard G., **Crifo P.**, Diaye MA., Oueghlissi R., Scholtens B. 2018. Environmental, Social and Governance (ESG) performance and sovereign bond spreads: an empirical analysis of OECD countries. Journal of Banking and Finance
- **Challe, E.**, J.I. Lopez and E. Mengus, 2019, Institutional quality and capital inflows: Theory and evidence, Working Papers, resubmitted to Journal of International Money and Finance
- **Cherbonnier, F.,** and **C. Gollier**, 2018, The economics determinants of risk-adjusted social discount rates, wp
- Cremers, M., **S. Sepe** and S. Masconale, 2018, Is the Staggered Board Debate Really Settled*, University of Pennsylvania Law Review* forthcoming
- Cremers, M. and **S. Sepe**, 2018, Investors' Time Preferences and Corporate Governance, *Seattle University Law Review* 41
- Cremers, M., S. Gurnsey, L. Litov and **S. Sepe**, 2018, Shadow Pill and Long-Term Firm Value, wp
- Cremers, M., S. Gurnsey and **S. Sepe**, 2018, Stakeholder Orientation and Firm Value, wp
- Cremers, M., S. Gurnsey and **S. Sepe**, 2018, Quite Life and Good Performance: Business Combination and Firm Profitability, wp
- Cremers, M., and **S. Sepe**, 2018, Total Asset Q and Corporate Governance, wp
- Creti, A., A. Kotelnikova, **G. Meunier** and **J.-P. Ponssard**, 2018, Defining the abatement cost in presence of learning-by-doing: application to the fuel electric vehicle, Environmental and Resource Economics
- **Crifo P.**, Escrig-Olmedo E., Mottis N., 2018, Corporate Governance as a Key Driver of Corporate Sustainability in France: The Role of Board Members and Investor Relations. Journal of Business Ethics.
- **Crifo P.**, Rebérioux A., 2018, Le gouvernement d'entreprise: nouveaux enjeux. Revue d'Economie Financière. Introduction au n° spécial.
- Dietz, S., **C. Gollier**, and L. Kessler, 2018, The climate beta, *Journal of Environmental Economics and Management* 87, 258-274.
- Farinosi, F., C. Giupponi, **A. Reynaud**, G. Ceccherini, C. Carmona-Moreno, A. De Roo, D. Gonzalez-Sanchez and G. Bidoglio, 2018, An innovative approach to the assessment of hydro-political risk: a spatially explicit, data driven indicator of hydro-political issues, *Global Environmental Change* 52, 286-313.
- Fisch, J. and **S. Sepe**, 2018, Collaborative Shareholders, wp

- **Gollier, C.**, and M.S. Kimball, 2018, New methods in the classical economics of uncertainty: Comparing risks, *Geneva Risk and Insurance Review* 43, 5-23.
- **Gollier, C.** and M. S. Kimball, 2018, Toward a Systematic Approach to the Economic Effects of Risk: Characterizing Utility Functions, *Journal of Risk and Insurance* 85, 397-430.
- **Gollier, C.** 2018, Aversion to risk of regret and preference for positively skewed risks, *Economic Theory*, forthcoming.
- **Gollier, C.** 2018, Stochastic volatility implies fourth-degree risk dominance: Applications to asset pricing, *Journal of Economic Dynamics and Control*, 95, 155-171.
- **Gollier, C.,** 2018, Variance stochastic orders, *Journal of Mathematical Economics*, forthcoming.
- **Gollier, C.**, 2018, Valuation of natural capital under uncertain substitutability, *Journal of Environmental Economics and Management*, forthcoming.
- **Gollier, C.**, 2018, On the efficient growth rate of carbon price under a carbon budget, TSE Working Paper, n. 18-952.
- **Gollier, C.** and R.E. Kihlstrom, 2018, Recursive asset pricing with nonrecursive preferences, wp.
- **Gollier, C.,** 2018, A general theory of risk apportionment, wp.
- **Gollier, C.,** and O. Mahul, 2018, Term structures of discount rates: An international perspective, wp.
- Hilton, D, **N. Treich**, G. Lazzara, and P. Tendil, 2018, Designing effective nudges that satisfy ethical constraints: The case of environmentally responsible behavior, *Mind & Society,* forthcoming
- Jaballah J. and **S. Pouget**, 2018, Facteurs Environnementaux, Sociaux et de Gouvernance et performance des petites et moyennes entreprises cotées, wp.
- Le Bris D., W. Goetzmann, and **S. Pouget**, 2018, The present value relation over six centuries: The case of the Bazacle company, *Journal of Financial Economics*, in press
- Louche C., Busch T., **Crifo P.**, Markus A, 2019, Financial Markets and the Transition to a Low-Carbon Economy: Challenging the Dominant Logics. Organization & Environment. Vol. 32(1) 3–17.
- Lyon T, Delmas M, Maxwell J, Bansal T, Chiroleu-Assouline M, **Crifo P**, Durand R , Gond JP, King A, Lenox M, Toeffel M, Vogel D, Wijen F, 2018, CSR Needs CPR: Corporate Sustainability and Politics, California Management Review.
- Margaretic P. and **S. Pouget**, 2018, Sovereign bond spreads and extra-financial performance: An empirical analysis of emerging markets, *International Review of Economics and Finance* 58, 340-355.
- **Meunier, G.**, J.-P. Montero and **J.-P. Ponssard**, 2018, Output-based allocations in pollution markets with uncertainty and self-selection, Journal of Environmental Economics and Management, 92, 832-851.
- **Rossetto S**., and R. Stagliano’, 2018, Ownership concentration and firm’s risk: Evidence from the US, wp

Communication of the Chaire FDIR achievements and awards

The advances made by the researchers of the Chaire FDIR have been presented to a wide audience including academic researchers, finance practitioners, and the general public, both in France and abroad. The Chaire FDIR has been instrumental in allowing for the creation of the knowledge communicated in the various events described below.

1) Communication to finance practitioners

In 2018, the Chaire FDIR has organized various events during which researchers have presented the implications of their results for CSR and SRI. In particular, 3 workshops have been organized at the AFG for the sponsors. A conference to celebrate the ten-year anniversary of the Chaire has been organized for the sponsors at the AFG. Researchers have also organized or contributed to general audience conferences.
The presentations and programmes are available on the Chaire FDIR website at http://fdir.idei.fr.

Workshops with the sponsors

- *Workshop, 10 January 2018*
- Christel Dumas (ICHEC Brussels Management School) : ESG impact indicators and Delphi group
- Jakob Thoma (CNAM) : Les implications du changement climatique sur les portefeuilles financiers

- *Workshop, 15 June 2018*
- Antoine Rebérioux (Université Paris Diderot): “L’objet social des entreprises: perspectives économiques et juridiques”
- Salima Benhamou (France Stratégie): “Quels leviers organisationnels et managériaux pour une gouvernance partagée au 21ième siècle ? Enjeux et prospective”

- *Workshop, 13 September 2018*
- Arnaud Reynaud (TSE): An innovative approach to the assessment of hydro-political risk: A spatially explicit, data driven indicator of hydro-political issues"
- Valentin Jouvenot (University of Geneva): "Does Water Management Improve Corporate Value?”

<u>Conference of the Chaire FDIR, in partnership with ERAFP: 25 November 2018</u>

- 10 years of research by the Chaire FDIR, Catherine Casamatta (TSE)
  Testimony from sponsors of the Chaire FDIR: Héléna Charrier (Caisse des Dépôts) and Luisa Florez (LBPAM)
- Ethical asset valuation and the good society, Christian Gollier (TSE)
- Why women don't make it to the top?, Guillaume Hollard (Ecole Polytechnique)
- Roundtable "Long term investment strategies", moderator Patricia Crifo (Université Paris Nanterre & Ecole Polytechnique), with Thomas Coutts (Partner, Baillie Gifford), Philippe Desfossés (Director, ERAFP), Jean-Laurent Granier (President, Generali France)

2) <u>Communication to academic researchers</u>

The researchers of the Chaire FDIR have been invited to share their work and ideas in various academic conferences and workshops. In their publications or during their presentations, the researchers always gratefully acknowledge the support of the Chaire FDIR.

Examples of academic conferences

- 05/01/2018: AFA annual meeting Philadelphia. Presentation of "Board Declassification Activism: The Financial Value of the Shareholder Right Project".
- 06-07/01/2018: AEA Philadelphia, discussion on "Climate Change: Connecting Theory with Empirics" and "Individual and Social Discounting".
- 27/03/2018: ILB Financial Risk Forum, presentation of "BlackRock vs Norway Fund at Shareholder Meetings: Institutional Investors' Votes on Corporate Externalities".
- 27-28/04/2018: Keynote lecture, 2018 International Workshop on the Economics of Climate Change and Sustainability, University of Bologna, Bertinoro.
- 25-29/06/2018: EAERE International Conference, Gothenburg. Presentation of "Term structures of discount rates: An international perspective".
- 01/09/2018: 5th annual FAERE conference, Aix-en-Provence. Presentation of "On the efficient growth rate of carbon price".
- 26-27/10/2018: 7th International Moscow Finance Conference, HSE. Presentation of "Ownership concentration and firm's risk : Evidence from the US".

Examples of workshops and seminars

- 2/03/2018: Economic Seminar Series, University of Bergamo. Presentation of "*Directors' Duties Laws and Long-Term Firm Value".*
- 19/03/2018: Business Law Seminar Series, UCLA. Presentation of "*Directors' Duties Laws and Long-Term Firm Value".*
- 04/04/2018 : Law and economics seminar; NYU Stern & NYU Law School. Presentation of "Shadow pills and long term firm value"
- 05/04/2018: Research seminar Sciences Po / Banque de France. Presentation of "Les investissements à long terme: que doit-on financer ?".
- 12/04/2018: Workshop in Behavioral Economics, Frankfurt.
- 17-19/09/2018: EGRIE annual seminar, Nuremberg. Presentation of "A General Theory of Risk Apportionment".
- 25/09/2018: CSEF seminar, Naples. Presentation of "The present value relation over six centuries: The case of the Bazacle company".
- Workshop Chaire FDIR, Chaire Energie et Prospérité and Association d'Economie Financière: « La gouvernance – nouveaux enjeux », with A. Frerot (Veolia), N. Notat (Vigeo), P. Crifo (Ecole polytechnique and Chaire FDIR) and A. Reberioux (Paris 7)

3) <u>General audience reports and communications</u>

- 16/02/2018: Introduction to the Observatoire de l'Epargne Européenne Conference on "Robo advisors added value and risks".
- 13-17/03/2018: Annual CBA conference, Washington. Presentation of "Efficient Discount System: The Risk and Time Dimensions".
- 25/04/2018: Commission Quinet workshop on "The Shadow Value of Carbon".
- 01/06/2018: SCOR Conference, Paris. Intervention on "Climatonomics: embedding climate risk in economic analysis and decisions".
- 03/09/2018: Potsdam Institute for Climate Impact Research (PIK), Potsdam. Presentation of "Do we do enough for future generations?".
- 28/09/2018: TSE Forum. Roundtable on "Les défis de la pénétration des renouvelables dans le mix énergétique".
- 19/10/2018: Conference for the Young Leaders of the French American Foundation at TSE. Presentation on the economics of environment.
- 07/12/2018: IHEST at TSE. Presentation of "Incertitudes et responsabilité envers les générations futures: Le cas du changement climatique"
- 12/06/2018 : newspaper article. "Il n'y a pas de frein économique à l'amélioration du bien-être animal", *Le Monde*

- 18/12/2018 : newspaper article. "Bien-être animal: un étiquetage pour 'continuer à manger de la viande sans se sentir coupable'", *Le Monde*
- "How can Finance Support Common Interest?", October 2018, *Les Cahiers Louis Bachelier* 30
- "La finance verte : utopie ou réalité", in *l'Année des Professions Financières : Quelle finance en 2030?*, directed by le Centre des Professions financières, 2019

4) Awards and memberships in 2018

- Christian Gollier received the 2018 Publication of Enduring Quality Award by the Association of Environmental and Resource Economists, for the paper entitled "Discounting an uncertain future", published in the Journal of Public Economics (2002).
- Sébastien Pouget is a Member of the "Principles for Responsible Investments Academic Network committee".
- Catherine Casamatta received the 2018 Swiss Finance Institute Outstanding Paper Award for her paper "The Blockchain Folk Theorem" with B. Biais, C. Bisière and M. Bouvard.
- Silvia Rossetto has been appointed as a member of the Scientific Committee of the VOLT project (economics and IT department of King's College and University of Surrey) as an expert in corporate governance and voting.
- Marianne Andries won the 4Nations cup -a young finance scholars competition- on the 18 may 2018 in Berlin for the paper: "Ambiguous trade-offs, an application to climate change" (co-authored with Nina Boyarchenko, NY Fed) together with Guillaume Vuillemey (HEC Paris).

5) Highlights

- The FDIR Chair is involved in the organisation of the 11th PRI Academic Network Conference, to be held in Paris on the 9 September 2019. Catherine Casamatta, Patricia Crifo and Sébastien Pouget are members of the Conference Scientific Committee.

- Researchers of the FDIR Chair participate to events organized by the AFG to promote French initiatives for the asset management industry. Past events included S. Sepe at the French embassy in London (29 May 2018), and S. Rossetto at the French embassy in Luxembourg (22 January 2019). The next event will take place at the French embassy in Madrid (12 March 2019) and Edouard Challe will present the Chair FDIR.

Education and training related to the Chaire FDIR

The Chaire FDIR is fostering the diffusion of knowledge on CSR and SRI within the young generations of finance practitioners and researchers. State-of-the-art techniques and ideas of CSR and SRI have been taught in various courses offered to masters in Economics and Finance at the Ecole Polytechnique, at Toulouse School of Economics (TSE), and at Toulouse School of Management (TSM) of the University of Toulouse. Moreover, five PhD students are currently working on issues related to the Chaire FDIR.

1) <u>Courses</u>

- Lecture serie in economics and finance, Cours ECO611 Ecole Polytechnique, PA SEF & GD EDACF (20h)
- Stratégies Développement Durable des Entreprises - Master2 Economie du Dév Durable, de l'environnement et de l'energie, AgroParistech, Univ Paris Nanterre & Ecole Polytechnique (20h)
- Responsabilité Sociale et Environnementale - Master2 DDET, Univ Paris Nanterre (20h)
- Gestion et transfert des risques, Master2 BMM & GDA, Université Paris Nanterre (41h)
- La responsabilité sociale des entreprises, mastère ALISEE, AgroParisTech (3h)
- Valorisation de la performance extra-financière des entreprises, spécialité économie et gestion d'entreprises, 3ème année du cursus ingénieur d'AgroParisTech (M2) (3h)
- Sustainable performance, ESSEC (20h)
- Master in Finance, TSE and TSM: Asset Management and trading (24h)
- Master in Finance, TSE and TSM: Psychology of finance (24h)
- Master in Economics, TSE: Economics of risk and insurance: taking into account the long-term impacts of investments (27h)
- Master in Economics, TSE: benefit-cost analysis (30 h)
- Master in Economics, Université Paris-Saclay: Macro-finance (24h)
- Master in Economics, TSE: Topics in Law and Economics (including corporate governance) (30h)
- Master in Business Law, University of Toulouse Capitole: Game Theory and The Law (including corporate governance) (12h)
- Master in International and European Law, University of Toulouse Capitole: Economic Analysis of Law (including corporate governance) (15h)
- Ph.D. in Finance, TSE and TSM: Module in Law and Finance (15h)

- Msc in Finance, TSM, Corporate governance and ownership structure (5h)

2) PhD Students

PhD students of the Chaire FDIR in 2017-2018 included:

- Madalena Ferrana: Fairness in Cost Benefit Analysis: Equity-Enhanced Mean Variance Rules, started in September 2012 (advisor: C. Gollier)
- Aymeric Guidoux: CSR and governance, Ecole Polytechnique, defended in December 2018 (advisor: Patricia Crifo)
- Hung-Thuy Nguyen, SRI in developing countries, Toulouse School of Economics, started in September 2017 (advisor: Ingela Alger)
- Yixin Wang: Ownership structure in China, started in September 2018 (advisor: S. Rossetto)
- Maxime Wavasseur: On the pricing of long-term assets, defended in September 2018 (advisor: S. Pouget)
- Yuting Yang: Risk and responsibility, started in 2015 (advisor: N. Treich)
- Vincent Bouchet: Integration of climate issues into financial risk management, started in 2018 (advisors: N. Mottis and P. Crifo)

N°30 | OCTOBER 2018

Les CAHIERS LOUIS BACHELIER

Economic and financial news seen through research

How can finance support the common interest?

With Christian Gollier, Patricia Crifo, Loredana Ureche-Rangau, Simone Sepe and Édouard Challe

INDEX

N°30 | OCTOBER 2018

LOUIS BACHELIER .org

Economic and financial news seen through research

Publication of Institut Louis Bachelier – Palais Brongniart – 28 place de la bourse –75002 Paris
Tel. 01 73 01 93 40 – www.institutlouisbachelier.org – www.louisbachelier.org
Editorial Director: Jean-Michel Beacco
Editor-in-chief: Ryadh Benlahrech (ryadh.benlahrech@institutlouisbachelier.org)
Graphics Designer, Cover and Implementation:
Eux Production – Tel. 01 64 49 79 72 – www.euxproduction.com
Imprimeur Kava: 42 rue Danton – 94270 Le Kremlin-Bicêtre – Tel. 06 14 32 96 87

What projects should be supported to ensure the long-term welfare of society? Should these actions be taken care of by governments, companies, or individuals? Do we have the right tools to evaluate these choices and to ensure responsible corporate behaviour? The debate on these issues has intensified in 2018. In his letter to shareholders, Larry Fink, CEO of BlackRock, the world's leading investment management corporation, underlined the responsibility of companies. "Society is demanding that companies, both public and private, serve a social purpose. To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society." In France, the Action Plan for Business Growth and Transformation (PACTE) proposes that a social and environmental dimension be included in the definition of corporate purpose in the Civil Code.

There is still a long way to go in understanding how finance can combine the interests of current generations with those of future generations, and with those of "stakeholders" other than shareholders and investors. The Sustainable Finance and Responsible Investment* (FDIR) Chair, jointly run by the Ecole Polytechnique and Toulouse School of Economics (TSE), with the support of private partners and the Institut Louis Bachelier, has tried for ten years to provide answers to these questions. This new issue of Cahiers Louis Bachelier presents recent work carried out within the Chair.

In an interview, Christian Gollier describes the difficulties of integrating climate risk into investment decisions, where the problem of measuring the social value of investments is compounded by the complexity of coordinating governments and integrating the well-being of future generations. He also clarifies the role that socially responsible investment (SRI) actors can play in supporting responsible investment policies.

Drawing on a pioneering empirical study in the French context, the second article, by Patricia Crifo, examines the profitability of companies that make socially responsible commitments.

The third article, based on an interview with Loredana Ureche-Rangau, considers the argument put forward by the CEO of BlackRock that a universal fund cares by definition about social welfare. It shows that a universal fund objective leads to voting policies different from those of a fund, such as the Norway Sovereign Wealth Fund, that has an explicit mandate to represent citizens.

The fourth article, by Simone Sepe, analyses the issue of "good" corporate governance in the United States. It shows that a governance structure with an adequate board of directors can alleviate the short-term pressure from shareholders, so as to develop long-term projects.

The final article, by Édouard Challe, focuses on the role of finance in economic development, and shows that an increase in capital inflows can have a negative effect on the quality of institutions.

Enjoy your reading!

Catherine Casamatta,
Professor of Finance,
TSE (Toulouse School of Economics) and
TSM (Toulouse School of Management),
Toulouse 1 Capitole University,
and a member of the FDIR Chair

Partners

* The sponsors of the Chair FDIR are Allianz Global Investors France, Amundi AM, Caisse des dépôts, Candriam France, Edmond de Rothschild AM, Fonds de Réserve pour les Retraites, Groupama AM, HSBC Global AM France, La Banque Postale AM.

"FINANCIAL MARKETS CAN PLAY A ROLE IN THE FIGHT AGAINST CLIMATE CHANGE"

If the financing of the energy transition is becoming ever more urgent, given the growing impact of global warming, it is however necessary to direct more international capital towards investments that contribute to collective well-being. In this regard, it is especially important to take into account the environmental impacts of private investments. These crucial issues for the future of the planet and future generations are addressed at length in the research work of Christian Gollier, director of Toulouse School of Economics (TSE). In his latest book, *Ethical Asset Valuation and the Good Society* (Columbia University Press, published in October 2017), he has developed an atypical scientific approach to evaluate savings and investment decisions, so that they can serve the public interest. In this interview, he discusses the main recommendations arising from his work.

ILB: In your essay published in 2017, you develop a method that runs counter to classical economic theory. Your aim is to orient investment toward long-term assets that will bring social benefits to future generations. What is the starting point for your work?

Christian Gollier: In recent years, finance has been heavily criticized for being the source of many dysfunctions, the most dramatic example of which was the financial crisis of 2008-2012. I wanted to reflect on this topic, especially with socially responsible investors in mind, with a view both to putting these criticisms in perspective and to providing an ethical framework for thinking about the allocation of capital in the economy. To start from the basics, it's important to remember that companies do not only produce returns and employ labour, they also generate both positive and negative externalities, commonly referred to as extra-financial performance. However, these externalities should be taken into account, from the standpoint of the general interest, in issues of asset valuation, portfolio allocations and real investment in the economy. One of the major problems of our economies, for the last two hundred years, has been the efficient allocation of capital. Until now, the best solution to the problem has been the financial markets, but this is not perfect in terms of efficiency and compatibility with the general interest.

What are the current sources of market inefficiency?

CG: The issue of climate change is crucial. Companies have no incentive to reduce their carbon emissions, although there have been some attempts around the world. I'm thinking in particular of the European emissions trading scheme for carbon allowances, which is the most successful system. Unfortunately, for several reasons, both political and economic, the price of carbon allowances is currently too low for companies to really take into account, in their investment decisions and technological choices, the damage to the climate caused by the use of fossil fuels.

What solutions might there be for solving the problem of negative externalities caused by companies?

CG: Like most academic economists around the world, I believe that governments should strengthen their policy of combatting climate change by imposing a higher carbon price than the one prevailing today in the emission allowances markets. Another alternative would

Christian Gollier is director of Toulouse School of Economics, which he founded with Jean Tirole. He is an internationally renowned researcher in Decision Theory under Uncertainty and its applications in climate economics, finance, and cost-benefit analysis, with a special interest in long-term (sustainable) effects. He is one of the lead authors of the last two IPCC reports. He is also president-elect of the European Association of Environmental and Resource Economists (EAERE).

be for companies themselves, through incentives from the financial markets, to incorporate a carbon price and their environmental performance into their investment choices, so that they make the most intelligent decisions. This is what the socially responsible investment funds (SRI) market is aiming to do. In my book, I try to combine the basic principles leading to a transparent methodology for evaluating investment choices with a socially responsible approach, since the financial markets can play a part in the fight against climate change.

Governments should strengthen their policy of combatting climate change by imposing a higher carbon price than the one prevailing today in the emission allowances markets.

What principles and methodology should be advocated for corporate investors to adopt a more socially responsible approach?

CG: I propose identifying the different sources of non-financial performance, such as safety at work or the reduction of inequalities, as well as the various emissions of pollutants. In addressing SRI funds, my aim is to make them aware of the importance of including carbon prices and negative externalities into their investment valuations and portfolio allocations, as well as simply maximizing returns. For example, companies are currently obliged to publish their carbon emissions in their annual reports. SRI funds should therefore look at corporate emissions and multiply them by the price of carbon, and then re-incorporate this cost in their valuations. They should also adopt the same method for other negative externalities, and even for positive externalities such as well-being within the company and wage increases for the lowest paid employees (possibly because of relocation), which helps reduce global inequality.

Put simply, this is a bit like a bonus/malus system.

CG: Exactly. As in the car insurance market. Some companies emit more than others. In general, SRI funds adopt a "best-in-class" view, but without really quantifying emissions. Instead they make relative comparisons between companies according to their degree of social responsibility.

What do you propose for assessments of companies by SRI funds?

CG: My approach goes much further than the simple "best-in-class" view. I propose using quantitative finance techniques, particularly the Markowitz model, on dividend-per-share profitability data, which includes non-financial performance ethically evaluated under an SRI filter. It doesn't matter that SRI funds post different values for positive and negative externalities. What is important is that investors can choose in accordance with their own ethical preferences. This would also make SRI funds more transparent, and therefore more attractive.

With your approach, each SRI fund would decide on the values to be given to externalities.

CG: It's not a matter of assigned values arbitrarily. For example, if we take the price of carbon, an SRI fund might decide to estimate it at 100 euros per tonne. Is that sufficiently ethical or not? Many economists are working on this topic, including within the IPCC (Intergovernmental Panel on Climate Change), and have much to contribute. For economists, the ideal solution would be to price a tonne of carbon at the marginal cost or damage it generates, even if its actual price level has not been settled. I think that the damage caused by a tonne of carbon should be put around 50 euros, even if there is no consensus among scientists on this subject. At the end of the day, SRI funds should be looking to environmental economists to calculate the cost of carbon for society.

In the absence of an international consensus on the price of carbon, is it not difficult to apply your approach?

CG: It's true that there's residual scientific uncertainty about the intensity of climate damage caused by carbon emissions and it will take a few more decades to assess it conclusively. But the lack of absolute certainty does not mean that we should refrain from acting or taking decisions, especially since we all live under uncertainty of one kind or another, yet we make decisions. Uncertainty should not be a reason for inaction. Instead, we should incorporate risk into our decisions. Financiers have been doing this for ages. So why not do so with regard to climate change? ➜

It is preferable to apply a low or zero discount rate for low-risk, long-term investments (longer than 40 years), in order to encourage governments and companies to implement them.

Among other inefficiencies of the financial markets, is there not also their short-termism?

CG: This question should be addressed in another way. A company may be prompted to be potentially short-termist because capital is expensive in the financial markets. However, the higher the cost of capital mobilization, the more the company will seek to extricate itself as quickly as possible in order not to penalize its profitability. In such a case, the company is encouraged to be short-termist. The cost of capital thus represents the profitability required by investors, which is a combination of the interest rates at which the company borrows and the rate of return on the shares it has issued.

To see whether the financial markets are compelling a company to be short-termist, we need to analyse the interest rates at which it has borrowed in the past. It is these rates that will determine its investment choices and they approximate to a discount rate determined by the financial markets. In the twentieth century, low-risk companies, which were able to finance their capital at an interest rate close to that of government bonds, in fact borrowed at very low real interest rates. Indeed they were much lower than the 4% or so suggested in conventional finance models, with real interest rates in the United States of around 1%, while in France they were even negative due to high inflation. In actual fact the financial markets were long-termist with these low-risk companies. This means that, in order to finance them, households had to save a lot, thereby fuelling the high growth of the last century and our current well-being, despite their having an income level five to ten times lower than our own. On the other hand, for very risky companies, which invested in the new technologies of the time and carried out extensive research and development, the financial markets required much higher rates of return with a high risk premium. This situation tended to inhibit their long-term risk-taking, which is not good for growth and innovation.

If earlier generations were long-termist in terms of saving, what can be said about the present generation and the consequences for future generations?

CG: What the theory of modern finance tells us is that financial markets generate interest rates that are too low and risk premiums that are too high. Put simply, the financial markets make entrepreneurs overly cautious, whereas households are able to control their risks through large, diversified portfolios.

Let us return to the valuation of long-term investments, whose future net social benefits are discounted in order to measure their value creation for society. At level should this discount rate be set?

CG: The huge uncertainties characterising the very long term justify making major sacrifices today for future generations. It is therefore preferable to apply a low or zero discount rate for low-risk, long-term investments (longer than 40 years), in order to encourage governments and companies to implement them. However, for investments over a 20 or 30 year time span, I recommend a real discount rate of around 2%. Indeed, in a high-growth world like ours, future generations will be richer than the present generation. Yet saving today means transferring purchasing power to future generations, thereby increasing intergenerational inequalities. This may seem shocking at first glance, but it should be remembered that even though France has been in economic crisis for 40 years its real GDP has greatly increased over that period.

In conclusion, what are your priority recommendations for reducing the current impact of climate change on future generations and thus promoting virtuous investment?

CG: The best solution would be for countries to agree on a universal carbon price worldwide. But this will be very difficult if not impossible to implement given national selfishness, the prime example being 'America First'. As I mentioned earlier, the fallback alternative would be for financial markets to introduce mechanisms for evaluating their investment projects or decisions for governments, companies and entrepreneurs, that include a carbon price at a level compatible with the general interest. In this respect, the growth of SRI funds is a good way of achieving it, though investors need to be sufficiently motivated to move in this direction. ●

FINANCIAL
TRANSITION

DEMOGRAPHIC
TRANSITION

LOUIS BACHELIER .ORG

The organization that responds to societal and industrial issues through applied and fundamental research.

ENERGY
TRANSITION

DIGITAL
TRANSITION

IS CSR PROFITABLE FOR BUSINESSES?

While the rise of corporate social responsibility (CSR) is a move in the right direction, there is no clear consensus in the academic literature as to its positive impact on economic performance. Research is providing new insights into this important issue.

How can virtuous behaviour in favour of the environment, employees, customers and suppliers be reconciled with the maximization of profits? This thorny issue, which may create a dilemma for heads of companies, highlights the strategic challenges involved in implementing corporate social responsibility (CSR). Emerging some twenty years ago, CSR is defined as positive voluntary initiatives taken by companies regarding social, environmental and ethical concerns in the context of their economic activities. In line with this definition, CSR covers a variety of practices in different areas – the environment or green issues, human resources, relations with stakeholders, governance, etc. – that extend beyond the legal framework imposed by the regulations in force. It must be said that the regulatory framework has greatly favoured CSR in developed countries, especially France, in particular with the NRE (Nouvelles régulations économiques) Act of 2001 and the Grenelle II Act of 2010. Companies consequently need to find an economic justification for adopting CSR. "We wanted to know if there were economic reasons, over and beyond communication and marketing, to justify the inclusion of CSR practices by companies," says Patricia Crifo. All the more so since, despite extensive academic literature on the subject, no consensus has emerged as to the positive contribution of CSR to corporate results. Some studies have found that CSR improves profitability, while others have drawn the opposite conclusion. One of the reasons for this divergence is the trade-off between quantity and quality for measuring the impact of the different aspects of CSR. "Quantity concerns the effects of different dimensions of CSR calculated separately or aggregated, whereas quality is estimated by observing the mutual interaction between these dimensions," Patricia Crifo explains. "The lack of consensus in the literature was the conceptual starting point of our study. At the present time, this contrasting academic record has been counterbalanced to some extent, and it has been shown that CSR gives companies a slight economic edge. Nevertheless, scientific research has had trouble explaining why this should be so. Our work has enabled us to see the mediating factor more clearly."

Based on the paper *CSR related management practices and Firm Performance: An Empirical Analysis of the Quantity-Quality Trade-off on French Data,* International Journal of Production Economics, Volume 171, 2016, by Patricia Crifo, Marc-Arthur Diaye and Sanja Pekovic, and on an interview with Patricia Crifo.

A GROUND-BREAKING EMPIRICAL STUDY IN THE FRENCH CONTEXT

For their study, the researchers used INSEE data on companies, based on the COI (Changements Organisationnels et l'Informatisation) survey carried out in 2006. Note that this survey covers a wide range of topics, and is not specifically concerned with CSR. "On the basis of the companies' responses, we then looked at the quantitative data pertaining to CSR in order to create our sample of more than 10,000 companies, including SMEs. This original database

Despite extensive academic literature on the subject, no consensus has emerged as to the positive contribution of CSR to corporate results.

Patricia Crifo former student of Ecole Normale Supérieure (Cachan), PhD University Lyon, is Professor at University Paris Ouest and at Ecole Polytechnique (France), external member of CIRANO (Montréal), member of the French Economic Council for Sustainable Development and the National commission on Environmental Economics and co-responsible of the chair for Sustainable Finance and Responsible Investment (chaire FDIR). She was nominated Best Young Economist Le Monde/Cercle des économistes (2010), and was awarded the title of «Chevalier de l'Ordre National du Mérite» (2014), as well as Best Young Researcher Prize (Lyon 2002). Her research interests lie in green growth, corporate social and environmental responsibility, sustainable finance, technical progress, work organization and inequality.

Methodology

By drawing on stakeholder theory, the researchers investigated the links between corporate social responsibility (CSR) and companies' profits. They carried out an empirical analysis based on an original database of more than 10,000 French companies representative of the national economic fabric. Several types of econometric model were estimated to ensure the robustness of the results and to take into account the endogeneity of certain variables in the regressions, in particular simultaneous equation models and models using the instrumental variables method.

allowed us to correct various biases, including bias related to the size of companies, given the many SMEs in the sample, and bias from overestimation of CSR practices in large groups and underestimation of these in SMEs," says Patricia Crifo. The researchers then focused on three aspects of CSR: environmental practices, human resource management (HR), and relations with customers and suppliers, based on the data available. On this basis, they were able to construct indicators for estimating the effects of the three CSR dimensions on company profits. "We first measured the impact on profits of CSR dimensions taken separately and as an aggregate in a quantitative analysis. We then studied the effects of interactions between these three dimensions, to give us a qualitative view of the combined consequences of CSR on the companies' results," Patricia Crifo says.

CSR IS ADVANTAGEOUS FOR COMPANIES

From their econometric findings, the researchers were able to produce robust and meaningful results. In fact, all three dimensions of CSR analysed have positive effects on corporate profits, both in isolation and aggregated. "Contrary to popular belief, CSR does not generate additional costs for companies. On the contrary, it improves their profitability. In another study, conducted for France Stratégie on a sample of 8,500 companies, we found that, on average, CSR boosts the profits of companies that use this approach by 13%, compared to companies that do not," Patricia Crifo says.

THE QUALITATIVE ASPECTS OF CSR SHOULD ALSO BE EMPHASIZED

The interactions between the different dimensions of CSR are also positive, with only their levels of intensity varying. Thus the interaction between the environmental and the HR dimensions is the optimal combination for company profitability. Conversely, relationships with customers and suppliers have a lesser effect than the other two dimensions in terms of business results. "This finding does not mean that companies should focus on one dimension rather than another, or limit themselves to consolidating best practices. The most effective strategy would be to focus on the qualitative aspects of CSR practices, which would form part of the company's overall vision," Patricia Crifo suggests.

Given these positive CSR results with regard to corporate profitability, financial incentives by government to promote CSR would not make economic sense, as they would result in negative windfall effects. "The role of the public authorities is rather to encourage CSR through education. What is needed is the continuation of current policies, based on requirements for transparency on the part of companies. It is this combination of government regulation and corporate self-regulation that is the right solution," Patricia Crifo says.

Key points

- On average, CSR raises the profits of companies that use this approach by 13%, compared to companies that do not.
- To take full advantage of the benefits of CSR, companies need to focus on qualitative practices rather than simply consolidating CSR actions. CSR should consequently be part of managers' overall strategy.
- Government financial incentives are not an optimal instrument for encouraging CSR. It is preferable to continue the current policy, based on the transparency of the information provided by companies, while combining government regulation and corporate self-regulation.

HOW DO INSTITUTIONAL INVESTORS BEHAVE WITH REGARD TO CORPORATE GREENHOUSE GAS EMISSIONS?

In response to the threat of global warming, investors are increasingly concerned about negative externalities, especially environmental, generated by companies. Researchers have looked at the voting behaviour of BlackRock and the Norwegian sovereign wealth fund at general shareholder meetings.

Although the effects of anthropogenic global warming are becoming increasingly evident, as recent weather events have shown, greenhouse gas emissions continue their upward trend. Companies are to a significant extent responsible in this regard, through the negative externalities, particularly environmental, generated by their economic activities. Yet society pays an enormous price for the resulting environmental damage. According to Trucost, environmental damage (greenhouse gas emissions, water use and air pollution) caused by businesses cost the global economy about $4,700 billion in 2013. “This huge sum represented 6% of global GDP in 2013. On present trends, forecasts for 2050 are projecting 18% of global GDP, solely for these environmental externalities”, Loredana Ureche-Rangau says.

Companies are to a significant extent responsible, through the negative externalities, particularly environmental externalities, generated by their economic activities.

INSTITUTIONAL INVESTORS ARE MAKING KNOWN THEIR COMMITMENT TO THE CLIMATE

In 2015, institutional investors owned slightly more than 60% of the shares listed worldwide. Because of their significant weight in the financial markets, these long-term investors therefore have a role to play in influencing the environmental policies of the companies in which they have a stake. In early 2018, Larry Fink, CEO of BlackRock, the world’s largest asset manager with a $5 trillion portfolio under management, said he wanted more transparency and involvement regarding the environmental impacts of companies. Last July, the Norwegian sovereign wealth fund, the largest in the world with more than $1 trillion of assets managed, committed itself to take account of climate change risk. Loredana Ureche-Rangau comments:
These two major players are viewed as universal owners. BlackRock holds at least 5% of the equity in 2,500 companies around the world, while the Norwegian fund owns at least 1% of the shares of the companies in which it invests. We wanted to see how they vote and how they influence corporate strategies at shareholder meetings. Of course, these two big investors have very different goals and philosophies. BlackRock is a privately owned company that has a fiduciary duty to its shareholders, while the Norwegian sovereign fund acts as manager and invests the revenue from oil rent with a view to yielding a profit for future generations, while being accountable to the Norwegian parliament and people. But they are also universal owners, which gives us insight into their incentives to vote for a resolution and thus oppose the management of a company.

Based on the paper *BlackRock vs Norway Fund at Shareholder Meetings: Institutional Investors’ Votes on Corporate Externalities* by Marie Brière, Sébastien Pouget and Loredana Ureche-Rangau and on an interview with Loredana Ureche-Rangau.

Loredana Ureche-Rangau is Professor of Finance at the University of Picardie Jules Verne, Amiens and a member of the Centre for Research on Industry, Institutions and Economic Systems, Amiens (CRIISEA). Her research topics include sovereign debt crises, financial markets dynamics modelling, socially responsible investments, Islamic finance, and financial intermediation.

Methodology

The researchers conducted an empirical study of voting at shareholder meetings by BlackRock and the Norwegian sovereign wealth fund on joint resolutions, in order to explain their likelihood of opposing the management of companies in which they hold equity. They collected more than 35,000 joint resolutions voted on by these two major investors, and classified them by theme (environmental, social, governance, etc.) in accordance with the criteria established by Institutional Shareholder Services. Using binomial probit regressions and explanatory variables likely to influence the voting, they were then able to identify those variables affecting negative externalities – especially environmental externalities and in particular those pertaining to greenhouse gas emissions. The researchers then used this information to obtain their conclusions.

OPPOSITION RATES ON ENVIRONMENTAL RESOLUTIONS GO BEYOND FINANCIAL ISSUES

For their empirical study, the authors of the scientific paper focused on voting at shareholder meetings in 2014, analysing 35,382 joint resolutions voted by the two actors in 2,796 companies worldwide. This long-term study allowed the researchers to classify resolutions by theme (environmental, social, governance, financial, etc.) and by sponsors (shareholders, management). Significant results were obtained. Of the resolutions proposed by shareholders, BlackRock voted in opposition to the management of the company in 9% of cases and the Norwegian sovereign wealth fund in 34% of cases. Among these resolutions, the sovereign fund opposed the company management in 49% of cases on resolutions concerning the environment and social issues. For its part, BlackRock opposed management on environmental resolutions in 4% of cases and on social issues in 9%. Regarding resolutions on greenhouse gas emissions, the Norwegian fund opposed management in 83% of cases, against 4% for BlackRock. “Both funds opposed more to management on environmental and social resolutions than on financial resolutions, but the sovereign wealth fund is more active on these issues,” Loredana Ureche-Rangau emphasizes.

EXTERNALITIES INEVITABLY AFFECT UNIVERSAL OWNERS

To explain and justify the commitment of these funds to combat corporate environmental and social externalities, the academic literature has emphasized the concept of ‘universal owners’, which are highly diversified and have a large number of holdings. The negative externalities caused by a company in the portfolio of these investors may have a negative impact on other companies in the same portfolio and thus affect its overall profitability. “In our study, we found concept of universal owner to be necessary, but not sufficient, to explain an active policy of voting against environmental externalities. Other levers are at work,” Loredana Ureche-Rangau says. The concept of delegated philanthropy, which promotes the preferences and values of those represented by the funds (clients, investors, citizens), could also be an incentive for institutional investors. Loredana Ureche-Rangau adds:

At the moment, we cannot clearly prove this, but we have been continuing our work on the data of other funds over several years. However, in terms of public policy recommendation, we can say that it is not possible for universal investors to discipline multinationals generating negative externalities simply because they are universal owners. They need to be provided with an incentive, so that their commitments better reflect the preferences and values of clients and citizens. For their part, regulators could also encourage institutional investors to take into account the opinions of their clients and to provide greater clarity in their voting on negative externalities. Lastly, negative externalities are not taken into account in the valuation tools used in corporate finance such as net present value, which is purely financial. These tools should be broadened by including cost-benefit analyses.

These recommendations merit being thought seriously about at a time when global warming is becoming ever more worrying. ●

Key points

- Negative externalities caused by corporate activity are very costly for society. Institutional investors have a role to play in reducing them, because of their significant weight as shareholders of companies worldwide.
- The notion of universal investor is necessary but not sufficient for explaining the voting policy of large institutional investors.
- The commitment of institutional investors in their voting policy at shareholders’ meetings should reflect the values and preferences of the people they represent (clients, investors, citizens).

WHAT TYPE OF BOARD CREATES THE MOST LONG-TERM VALUE FOR US COMPANIES?

Good governance of listed companies, exercised by boards of directors, is crucial for defining appropriate strategies and thus fostering long-term value creation. However, the academic literature suggests that the impact of staggered boards – a proportion of whose members are renewed every year – is negative. Researchers turn over previous results and offer a new perspective on this question.

> **Yet corporate governance is the subject of much debate, particularly in developed countries, as to which practices on the part of the directors are the right ones.**

As well as takeover bids, pressure from activist investment funds and quarterly reporting obligations for financial communication, directors of listed companies have to contend with short-term requirements, which are not always compatible with long-term development and investment strategies. It is in this sometimes paradoxical or even ambiguous context that the members of boards of directors exercise their functions related to corporate governance. Yet corporate governance is the subject of much debate, particularly in developed countries, as to which practices on the part of the directors are the right ones. Admittedly, codes of governance – imposed by law and/or promoted by employer organizations and management associations – are regularly reviewed or discussed by the actors concerned, but there is no standard formula as to what constitutes good governance.

In the United States, for example, corporate law is directly dependent on the federated states, with each state offering different corporate law rules. Also, most of the corporate law rules are default, meaning that contracting parties can change the legal default, including corporate governance rules, as they wish. Finally, good governance is still far from being an exact science.

STAGGERED BOARDS LIMIT PRESSURE FROM FINANCIAL MARKETS

There are two different board governance structures for listed companies in the United States: the unitary board, all of whose members are elected at the same time, and the staggered board, divided into two or three groups of directors, of which only one group is elected each year. "When a company has a staggered board of directors, it takes at least two elections, or two years, to renew more than 50% of the directors and thus obtain a majority. Consequently it is more difficult for the financial markets, personified by shareholders, to exert pressure on directors to improve performance in the short term. However, some academic studies have concluded that staggered boards lead to the entrenchment of directors at the expense of shareholder interests. This research topic is therefore very important in the United States, because many companies have this type of governance," Simone Sepe says.

STAGGERED BOARDS ARE CORRELATED WITH LOWER COMPANY VALUATIONS…

A 2005 empirical study by the law and economist Lucian Bebchuk, a professor at Harvard Law School, found that, as well as the risk of entrenchment of directors and administrators, staggered boards of directors tended to lower

Based on the paper *Staggered Boards and Long-Term Firm Value, Revisited,* Journal of Financial Economics, Volume 126, 2017, by Martijn Cremers, Lubomir P. Litov and Simone M. Sepe, and on an interview with Simone Sepe.

Simone Sepe is Professor of Law and Finance at the University of Arizona, professor of Law at Toulouse 1 Capitole University, researcher at the Institute for Advanced Study in Toulouse and at Toulouse School of Economics. He is also a research member of the European Corporate Governance Institute (ECGI). Simone's areas of expertise include business organizations, corporate finance, law and economics, and jurisprudence. His scholarship focuses on corporate governance and the theory of institutions. His current research focuses on the firm value implications of corporate governance provisions. He holds doctoral degrees in both law and economics. Simone practised banking and finance law at Clifford Chance, an international law firm based in London, and worked as an investment banker at Fortress Investment Group in London and New York.

Methodology

The researchers carried out a theoretical and empirical analysis to identify the causal impact of staggered boards of directors on the long-term valuation of companies. Using a sample of panel data from more than 3,000 US listed companies covering the period 1978-2015, they performed econometric calculations and tests that robustly demonstrated the positive consequences of this type of governance. They variously used time series analyses, matching analyses, the generalized method of moments and an event study, following the near-mandatory establishment, in 1990, of staggered boards of directors in Massachusetts.

the firm's value, as measured by Tobin's Q. "The paper reveals a correlation between staggered boards and lower firm values, though without proving a causal relationship. It is true that this type of governance structure is associated with lower firm valuations. This is because lower-valued companies have a greater interest in adopting a staggered board of directors in order to reduce their vulnerability to take-over bids. In our work, we wanted to clearly identify a causal link between staggered boards of directors and firms' long-term valuations," says Simone Sepe.

... CONTRARY TO THE PREVIOUS ANALYSIS, NEW FINDINGS SUGGEST THAT STAGGERED BOARDS INCREASE FIRM VALUE

To compare the respective impact of unitary and staggered boards on the long-term valuation of companies, the researchers first collected data on more than 3,000 companies listed in the S&P 1,500 over the period 1978-2015. They then carried out various types of econometric study to obtain their results. "In our work, the negative correlation found by Bebchuk is not statistically significant. Indeed we found the reverse, combined with a clear causal link: companies with staggered boards have better valuations in the long run," says Simone Sepe. "The robustness of our results has been verified and tested with several econometric techniques. Our work shows that staggered boards of directors increase companies' long-term valuation, measured by Tobin's Q coefficient, by 3.2%." The positive causal link found by the researchers can be explained by the bonding hypothesis, according to which directors cannot develop a long-term investment strategy when under constant pressure from shareholders and the prospect of the complete replacement of the board. On the other hand, a staggered board of directors fosters the engagement of directors and stakeholders (customers, employees, suppliers, etc.) over the long term, because it is less subject to shareholder pressure." Shareholder oversight is very important, but in the short term – two or three years, in this case – shareholders should not intervene in companies' investment policies," Simone Sepe argues. Among the companies that have the greatest interest in setting up this governance structure are those with significant R&D outlay, as such investment requires time, which shareholders are not always ready to grant.

Lastly, the researchers found no evidence from their study that staggered boards create a risk of entrenchment by the company's directors and officers. These various positive findings amount to powerful arguments for this type of governance in US listed companies.

Key points

- Staggered boards increase the long-term value of the companies that have introduced this type of governance. This result, running counter to the academic literature, is explained by the bonding hypothesis, which suggests that management approves more investment – the creator of long-term value – when it is not under constant pressure from shareholders.
- Staggered boards of directors are also beneficial to shareholders in the long term, in that they generate greater returns.
- Staggered boards provide more value to companies that are the most innovative in terms of R & D, because these investments take time. Conversely, because of shareholder pressure, it is more difficult for a unitary board to justify such expenditure.

WHAT ARE THE LINKS BETWEEN THE QUALITY OF INSTITUTIONS AND A COUNTRY'S CURRENT ACCOUNT?

The institutions of a country are supposed to participate in its economic development, but in some countries, especially in southern Europe, institutions have deteriorated significantly, and did so well in advance of the financial crisis. Researchers have sought to account for this situation both theoretically and in terms of empirical evidence.

The introduction of the euro was originally intended to create political and economic convergence between the eurozone's member countries – a goal that has remained unfulfilled.

While the economic outlook for the eurozone has considerably improved recently, the impact of the financial crisis is still being felt, especially in southern European countries (Spain, Greece, Italy, Portugal). What is more, the sovereign debt crisis, from 2010 to 2012, highlighted the lack of convergence of the member states of the monetary union and the problems faced by its peripheral countries. Indicators produced by the World Bank on the quality of the institutions of these four peripheral countries have worsened since the mid-1990s, a period characterized by the run-up to, and introduction of, the euro. Over the same period, all these countries experienced current account deficits, as a result of massive inflows of foreign capital, fuelled by favourable external financing conditions. "Following the economic and financial problems of the euro zone, we wanted to examine the dynamics at work in the monetary union by looking at the differences between the countries of the 'core' and those of the 'periphery'," Édouard Challe says. "We brought to light a crucial link between the deterioration of the institutions of the countries of southern Europe and the fact that they have been recipients of large amounts of external capital, either public or private or both."

To analyse this phenomenon of institutional deterioration, the researchers compared the World Governance Indicators (WGI) – compiled by the World Bank and covering various measures such as the efficiency of the government, the rule of law and the control of corruption – for Spain, Greece, Italy and Portugal and for the rest of the euro zone. "The quality of the institutions of the countries of southern Europe clearly deteriorated between 1996 and 2011 in comparison to the other countries of the monetary union and more generally to OECD countries," Édouard Challe says. Yet the introduction of the euro was originally intended to create political and economic convergence between the eurozone's member countries – a goal that has remained unfulfilled.

INSTITUTIONAL DETERIORATION IS NOT LIMITED TO SOUTHERN EUROPE

After noting the correlation between the deterioration of institutions and massive capital inflows into Spain, Greece, Italy and Portugal, the researchers extended their investigation to a larger panel of countries, with a view to widening their sample and confirming or disconfirming the link between a current account surplus and the deterioration of a country's institutions. On the basis of available data,

Based on the paper *Institutional Quality and Capital Inflows: Evidence and Theory* by Édouard Challe, Jose Ignacio Lopez and Eric Mengus, and on an interview with Édouard Challe.

Édouard Challe is a macroeconomist, a CNRS director of research at CREST (Centre de Recherche en Économie et Statistique) and a professor at the École Polytechnique. He has also taught at the universities of Paris Nanterre, Paris Dauphine, Cambridge and Columbia. His research focuses on speculative bubbles, precautionary saving behaviour, and macroeconomic policy.

Methodology

The researchers carried out a theoretical and empirical analysis to identify the systematic links between the deterioration of institutions and a country's current account. They used econometric panel techniques, while seeking to minimize the classic problems of endogeneity and reverse causality. They then combined a soft budget syndrome model with an open economy model – for the first time in the academic literature.

they were able to analyse 95 countries worldwide. "Our econometric results show that persistent capital inflows into a given country are regularly followed by the deterioration of its institutions," Édouard Challe says. However, the causal relationship goes one way only, in that poor institutions do not lead to a massive inflow of capital.

RELAXATION OF FINANCIAL CONSTRAINTS IS NOT NECESSARILY A GOOD SIGNAL

As well as considering the empirical evidence, the researchers developed their theoretical thinking by drawing on micro-economics and the concept of the "soft budget constraint syndrome". "This theory, developed by the Hungarian economist Janos Kornai in 1979, accounts for the inability of a socialist state not to save a public company from bankruptcy, even though it has already suffered an outright loss on the invested funds. The theory was then extended to developed countries, in which the state has the power to rescue companies. This situation is a well-known commitment problem in microeconomics," says Édouard Challe. "We revisited this theory, in which the budget constraint of a country is relaxed, and applied it to an open economy model receiving inflows of capital – the first time in the academic literature that this has been done."

Specifically, the model incorporates the notion of extractive projects, defined as projects that benefit only their owners or initiators, while at the same they require public funding. "These projects are inefficient for society. We assume that if a country has a large number of such projects, the quality of its institutions is poor. So we used this as an indicator in our model for measuring the quality of institutions," Édouard Challe says.

LOW INTEREST RATES ENCOURAGE RISK TAKING

Using this theoretical approach, the researchers were able to confirm the empirical evidence, which shows that massive capital inflows into a country lead to the deterioration of its institutions. This institutional deterioration is explained by the soft budget constraint syndrome, which encourages states to protect companies or projects that are of no benefit to society. Put plainly, when external financing conditions are favourable, especially with low interest rates, rescues of projects that are unprofitable for society (i.e. extractive projects) are less costly, thereby exacerbating the soft budget constraint syndrome. Project promoters are thus encouraged to take risks, counting on the fact that the state will come to their rescue in the event of difficulty. And in turn, the state is less inclined to improve the quality of its institutions. "This situation is thus doubly unsatisfactory in that both private and public debt soar," Édouard Challe says. In a global economy characterized by massive indebtedness, especially in southern Europe, these new findings provide insight and guidance for explaining the links between institutional quality and a country's current account. Food for thought for policymakers!

Key points

- The quality of institutions in southern European countries (Spain, Greece, Italy and Portugal) deteriorated during the run-up to the introduction of the euro. This deterioration is associated with massive capital inflows into the countries concerned.
- The phenomenon of institutional deterioration correlated with the massive inflows of capital has been verified on a large sample of countries worldwide.
- Institutional deterioration is explained by the "soft budget constraint syndrome", whereby states are encouraged to safeguard companies or projects that are not profitable for society.

INSTITUT
Louis Bachelier